

5. We have some big voltage surges here. Is a voltage regulation amperite available?

A.: We cannot say for certain if they are.

6. Is there any way of overcoming the undesirable state that is caused when the power is turned on the 250 is left for a few seconds without bias?

A.: You could incorporate a switch in the plate circuit of the 250, and turn it on about 30 seconds after the filament.

7. Some months ago I bought a valve which gave symptoms of a loose connection. I replaced it and now after some months' rest I find it quite satisfactory. Could you explain?

A.: Sorry, we cannot. Are you sure it was not in the socket or elsewhere in the set?

W.N. (Gisborne): Can I get better results with a 65 feet aerial than a 40 feet one?—Yes.

ROSS (Woodville): What valves do you recommend for my American-built receiver?

A.: Four 221's and a high gain power valve such as B605 in the last stage, but as you may have difficulty in getting the 221's you could use 201A's or A609's in the four stages. From what you say it seems that your valves are at fault.

ALMOST (Auckland): Do I have the best combination of valves for my set?—Yes.

2. Where can I obtain a diagram of an a.c. eliminator, and what will be the total cost?

A.: A suitable eliminator will be described in the 1931 "Guide." We cannot yet state what its cost will be.

SEARCHER (Kaikohe): I wish to make a battery set suitable for a radio gramophone. Which are the best circuits? Loftin-Four, H.R. Four, S.G. B.D. Four, Differential Four?

A.: The Loftin-Four is ruled out on account of its being a.c. The choice probably lies between the B.D. and the Differential Four. Both of these use screen grid. The Differential would probably be the better for shortwave work. A fair amount will be published on this topic shortly and in the 1931 "Guide."

R. B. (Nelson).—What current should the 90-volt Leclanche battery of torch cells deliver?—About 10 m-amps.

They read only a volt per cell. Why? A.: It seems that they are more or less polarised, but they are working satisfactorily there is nothing to worry about. If you can, leave them for a while without using them. They may recover, and then be quite all right.

3. Should the area of the zinc plates be equal to the carbon rod area?

A.: It is not at all material, the zinc could possibly be a little thinner. The thicker it is the longer it will last.

4. Should commercial or pure zinc be used?

A.: Commercial zinc, which is cheaper, is really quite satisfactory, though pure zinc would last longer.

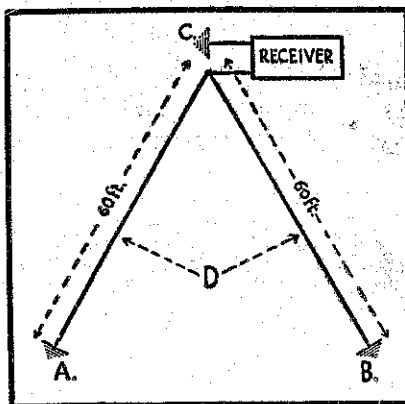
5. Could a half amp amperite be used with two 1-amp valve in series?—Yes.

6. Would it be satisfactory with 1-amp valve?

A.: The filament voltage on this would be about 5.5 volts instead of 5, which would not be altogether satisfactory.

RECORDITE (N.P.). I found that static and interference was reduced by at least 75 per cent. without any corresponding loss in volume by using an underground antenna. This was made up of two legs of 14-gauge rubber covered wire 60 feet long, slanting away from the receiver, as in the diagram. 2. Is the variable condenser included for any purpose other than to increase selectivity?

A.: You have not stated what variable condenser. If it is one in the aerial, the selectivity is the main reason for its be-



To make this aerial non-directional the three points, A, B, and C should form an equilateral triangle each 60 feet apart.

C.: Ordinary earth.

D.14g, rubber-covered wire earthed through a copper plate at A and B, wire buried one foot under ground.

ing there. It is rarely necessary.

3. Is it necessary to fit a lightning arrester to this aerial to comply with the underwriter's regulations?—No.

4. Would lead covered wire give any advantage over rubber covered?

A.: In this case it would be best.

C. H.W. (Invercargill).—I intend to construct a receiver, the circuit of which I enclose, and would like your advice.

A.: Why not wait for the screen grid version of the differential two? It will be very much better, and full constructional details will be given. The circuit you have given would be more or less satisfactory, and it could be improved upon.

Power Interference

A SHORT time back in Questions and Answers we asked anyone near the Hamilton Hospital who was experiencing power interference to write to us. We have received a letter from "N.E.L." who states that he was troubled with the interference complained of by our previous correspondent, and when he moved to a different locality reception was perfectly clear.

If our correspondent "S.W." takes up the matter with Power Board he will probably get some satisfaction. A note to the engineer or the district radio inspector would be helpful.

Tips and Jottings

Short-Circuiting Dangers

THE use of a metal "chassis" panel, or screen, in a modern set necessitates the greatest care in ensuring that only those metal parts of the components touch the panel (or screen) that are intended so to do. Unless all other parts clear the panel by a safe margin, there is always the chance of a short-circuit occurring, which might be a serious matter.

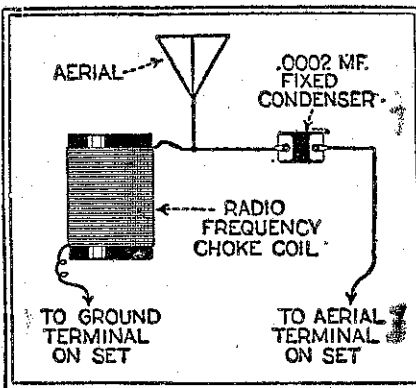
On Choosing Screws

WOOD screws with countersunk heads are generally unsuitable for use on such articles as small fixed condensers, as they are liable to break off the moulded fixing lugs or "feet." A round-headed screw will clamp the part quite firmly without damage. It is likewise not advisable to use thin brass screws in hardwood such as oak unless the screw threads are greased, or a pilot hole drilled beforehand. Lack of these precautions may result

in the screw twisting in halves—an awkward happening. A good idea is to use steel screws, which are stronger and also allow of easy manipulation in awkward corners by means of a magnetised screwdriver.

An Interference Filter

A CORRESPONDENT writes enclosing a clipping from an overseas paper. It describes a hook-up for an interference eliminator. It comprises a coil of 100 turns of No. 26 D.C.C. wire, wound on a 3in. cardboard former, and a fixed condenser of about .0002 mfd. The exact capacity of the condenser will be found by experiment. The connections are quite clearly shown in the



accompanying diagram, and it is stated that the circuit is quite a good one for reducing machine interference. It is really a type of tuned circuit and should improve selectivity.

Marking Out Panels

EBONITE panels may be quite easily spoilt by over-heavy use of the centre punch when marking out. If, however, a finely pointed bradawl is pressed firmly into the panel and twisted like a gimlet, it will make quite a sufficient mark to start a drill, and will not slip and mar the panel, while there is no danger of cracking the ebonite. Any burrs produced by drilling should be removed.

Useful Tips

DO not allow a flexible battery cord to rub against the side of an accumulator, or stray acid may affect the insulation and ruin the connection.

WHERE hum is troublesome a different earth is always well worth trying.

CHANGING your "B" battery plugs may cause an unpleasant click in your neighbour's receiver.

DO not use a baffle-board or a cabinet which has a hole smaller than the one specified for the cone you are using as this will make for muffled reproduction.

RADIO DIRECTORY

What to Buy and Where

CITIES

ACE and HAMMARLUND SETS, Johns, Ltd.

WESTINGHOUSE Rectifiers Chancery Street, Auckland.

BROWNING DRAKE SPECIAL- F. J. W. Fear & Co.

ISTS 63 Willis Street, Wellington.

BURGESS RADIO BATTERIES, All Radio Dealers.

KING RADIO RECEIVERS ... F. J. W. Fear & Co.,
63 Willis Street, Wellington.

LOFTIN-WHITE AMPLIFIERS Stewart Hardware Ltd.,
Courtenay Place, Wellington.

MAJESTIC RADIO RECEIVERS Kirkcaldie & Stains,
Wellington Agents, Lambton Quay.

MULLARD VALVES All Radio Dealers.

PILOT 1930 PARTS—PILOT Harrington's, N.Z., Ltd.,
SUPER WASP KITS, GILFIL- 138-140 Queen St., Auckland.
LAN, KELLOGG and AT- 40-42 Willis St., Wellington.

WATER KENT SETS

RADIOLA RECEIVERS and Farmers' Trading Co., Ltd.,
Expert Radiola Service. Hobson Street, Auckland.

STEINITE RADIO G. G. Macquarrie, Ltd.,
120 Willis St., Wellington.

COUNTRY TOWNS

MAJESTIC Radio House, Hamilton.
G. S. Anchor Manager.

PHILIPS VALVES AND APPARATUS All Good Radio Dealers.